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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,927	01/09/2002	Henryk Birecki	10004242-1	4533

7590

05/30/2003

HEWLETT-PACKARD COMPANY
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EXAMINER

MEIER, STEPHEN D

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,927

Applicant(s)

BIRECKI ET AL.

Examiner

Stephen D. Meier

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 9-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

Applicant's traversal of the restriction requirement is noted. The Examiner maintains that the restriction requirement is proper since reordering of the steps is in fact a materially different process. Also, although it is true that the restriction has cited a different method of manufacture, due to the breadth of claims, it also highlights that the method claims of Group II do not necessarily achieve the device of Group I. Specifically, there is no requirement for an aperture in the device claims of Group I. For these reasons the restriction requirement is hereby made FINAL.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalamala et al (6,091,190).

Chalamala teaches a structure for an electron emission device having a emitter electrode having a Schottky barrier, the emitter being metal layer 118 a metal such as molybdenum (see column 3, lines 5+) and a Schottky passivation layer such as oxides of Ba, Ca, In, Sc, Ti, Ir, Co, Sr, Y, Zr, Ru, Pd, Sn, Lu, Hf, Re, La, Ce, Pr, Nd, Pm, Sm, Eu, Ge, Tb, Dy, Ho, Er, Tm, Yb, Th (see column 2 lines 40+). The key to the invention is that understood to be that the passivation oxide must be lower in work function than that of the metal layer (see column 2 lines 34+). Chamala also provides for gate

Art Unit: 2822

electrodes (extractor electrodes) 116. It would have been obvious to a skilled artisan to use any metal in combination with the passivant as long as the passivant is of lower work function. For example in column 1 includes other metals including titanium, hafnium and gold as functionally equivalent with molybdenum. If Applicant wishes to maintain patentability of Ti over its functional equivalents of Pt, W, Mo, Ti, Cu, Au, Ag, Ta, etc, the Applicant needs to address the criticality of this metal as opposed the Applicant's specification which lists all of these metals as suitable functional equivalents.

Claims 2, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalamala as applied to claims 1, 3-5 and 8 above, and further in view of Christensen (4,663,559).

Christensen teaches both anode electrodes 26 (i.e. extractor electrodes) and the additional focusing electrodes 16. Note Christensen also teaches a flattened emission electrode as opposed to the tipped electrode of Chalamala. It would have been obvious to combine the teachings of Chalamala with the advantages of the materials for emission with the improved design of Christensen's focusing electrodes in order to have controlled beam emission. Also, the flattened emission electrode is a design choice that renders fabrication easier.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Meier whose telephone number is (703) 308-4896. The Examiner is off on the first Friday of each biweek, however can generally be

Art Unit: 2822

reached Monday through Friday during normal business hours, including first Fridays of the biweek.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0956. The fax number for the group is (703) 308-0725.

Meier
May 27, 2003

A handwritten signature in black ink, appearing to read 'Stephen D. Meier', with a long horizontal flourish extending to the right.

Stephen D. Meier
Primary Examiner
Art Unit 2822